

## **REMARKS**

Claims 9 to 21, as amended, appear in this application for the Examiner's review and consideration. Claims 15, 18, and 21 are withdrawn from consideration at this time, as being directed to a non-elected species. Those claims will be rejoined upon allowance of a generic claim. The amendments are fully supported by the specification and claims as originally filed. In particular, support for the recitations in the claims of the shaft having at least two openings, each opening having a first end and a second end and a tendon connecting the first end and the second end of the opening, thereby bridging the first and second ends of the opening, and dividing the opening into two portions can be found in Figures 1 and 2 and the text in the specification describing those figures. Therefore, there is no issue of new matter. In addition, the amendments to the independent claims add recitations that elaborate on the structure of the presently claimed invention, and, thus, do not affect the scope of the claims. The amendments only further clarify the claimed invention.

Claims 9 to 13, 16, and 19 stand rejected under 35 U.S.C. § 102(b), as being anticipated by U.S. Patent No. 5,465,282 to Berglund for the reasons set forth on pages 2 and 3 of the Final Office Action; and claims 14, 17, and 20 stand rejected under 35 U.S.C. § 103(a), as being unpatentable over Berglund for the reasons set forth on page 4 of the Final Office Action.

In response, Applicants submit that the presently claimed invention is directed to a method for repairing a nuclear fuel assembly. The claimed method comprises providing a repair sleeve, the repair sleeve having a shaft with a first end, a second end and a diameter, the diameter configured to fit into a guide thimble opening of a top nozzle of the fuel assembly, where the diameter of the shaft is dimensioned such that an exterior of the shaft fits into the guide thimble opening.

The shaft has at least two openings, each opening having a first end and a second end and a tendon connecting the first end and the second end of the opening, thereby bridging the first and second ends of the opening, and dividing the opening into two portions. The tendons are configured to deflect in an instance of a horizontal load on the tendon during insertion, each of the tendons having at least one projection configured to be inserted into a dimple of a guide thimble sleeve, and the repair sleeve has a lapped edge for installation on the top of the top nozzle of the nuclear fuel assembly.

The repair sleeve is inserted into the guide thimble opening in the top nozzle of the nuclear fuel assembly, such that the projections of the tendons project into the dimples of the

guide thimble sleeve, and a thimble insert assembly is inserted into an interior of the repair sleeve.

Therefore to be within the scope of the present claims, a reference must disclose or suggest inserting a repair sleeve in the guide thimble opening in the top nozzle of a nuclear fuel assembly, where the sleeve comprises a shaft that has at least two openings, each opening having a first end and a second end and a tendon connecting the first end and the second end of the opening, thereby bridging the first and second ends of the opening, and dividing the opening into two portions. The sleeves recited in the present claims do not read on sleeves having single or multiple slits or openings, where the slits or openings are separated by portions of the wall of the sleeve.

In contrast to the presently claimed invention, in Figure 4 and the description thereof, at column 3, lines 23 to 26, as cited by the Final Office Action, Berglund discloses a guide sleeve 12 provided with a slit 20. The specification of Berglund specifically refers to a slit 20. Berglund does not disclose or suggest a second slit, and, thus, does not disclose or suggest a shaft having at least two openings, as presently claimed.

Moreover, the slit disclosed by Berglund is not an opening having a first end and a second end and a tendon connecting the first end and the second end of the opening, thereby bridging the first and second ends of the opening, and dividing the opening into two portions, as presently claimed. Even if Berglund did disclose two slits, the two portions of the sleeve between the two slits would not divide either of the slits into two portions, as presently claimed. Thus, Berglund does not disclose or suggest a shaft having two openings, each opening having a first end and a second end and a tendon connecting the first end and the second end of the opening, thereby bridging the first and second ends of the opening, and dividing the opening into two portions, as presently claimed.

Therefore, Berglund does not disclose or suggest a method for repairing a nuclear fuel assembly in which a repair sleeve, comprising a shaft having the bridged openings recited in the present claims, is inserted into a guide thimble opening in the top nozzle of the nuclear fuel assembly, and, thus, Berglund does not anticipate or render the present claims obvious. Accordingly, it is respectfully requested that the Examiner withdraw the rejections of claims 9 to 13, 16, and 19 under 35 U.S.C. §§ 102(b) and 103(a) over Berglund.

Claims 9 to 14, 16, 17, 19, and 20 stand rejected under 35 U.S.C. 103(a) as being unpatentable over either of U.S. Patent No. 4,699,759 to Feild, Jr. (Feild) or U.S. Patent No. 4,751,039 to Delevallee et al. (Delevallee) in view of either U.S. Patent No. 3,791,466 (denoted as 4,699,759 in the Final Office Action, but as 3,791,466 in the Notice of

References Cited) to Patterson et al. (Patterson) or Berglund for the reasons set forth on pages 4 to 7 of the Final Office Action.

In response, Applicants submit, as discussed above, to be within the scope of the present claims, a reference must disclose or suggest inserting a repair sleeve in the guide thimble opening in the top nozzle of a nuclear fuel assembly, where the sleeve comprises a shaft that has at least two openings, each opening having a first end and a second end and a tendon connecting the first end and the second end of the opening, thereby bridging the first and second ends of the opening, and dividing the opening into two portions.

In contrast to the presently claimed invention, Feild and Delevallee both fail to disclose or suggest a shaft having at least two openings, as presently claimed. Therefore, Feild and Delevallee both fail to disclose or suggest the presently claimed invention.

Patterson and Berglund do not overcome the deficiencies of Feild and Delevallee. As discussed above, Berglund does not disclose or suggest inserting a repair sleeve in the guide thimble opening in the top nozzle of a nuclear fuel assembly, where the repair sleeve comprises a shaft having at least two openings, each opening having a first end and a second end and a tendon connecting the first end and the second end of the opening, thereby bridging the first and second ends of the opening, and dividing the opening into two portions, as presently claimed.

Similarly, Patterson discloses a sleeve **58**, having four slots **60** at 90° intervals around the sleeve. Column 5, lines 3 to 11, and Figure 11. One of ordinary skill in the art would understand that the portions of the sleeve between the slots are not the tendons of the presently claimed invention. The portions of the sleeve disclosed by Patterson between the four slots do not connect first and second ends of the slots, thereby bridging the first and second ends of the slots, and dividing the slots into two portions. One of ordinary skill in the art will recognize that each of the four slots disclosed by Patterson is separate from each of the other slots. Equating the portions of the sleeve disclosed by Patterson that separate the four slots with the tendons of the presently claimed invention would mean that the sleeve had a single slot divided into four portions by four tendons. This is clearly not the case. In light of the disclosure of Patterson, one of ordinary skill in the art will understand that those portions of the sleeve between the slots are part of the sleeve wall, and do not correspond to the tendons recited in the present claims.

Therefore, even if the teachings of Patterson and Berglund are combined with that of Feild and/or Delevallee, the resulting combination would not provide the presently claimed invention.

Therefore, as Feild, Delevallee, Patterson, and Berglund, whether taken alone or in combination, do not disclose or suggest the presently claimed invention, the present claims are not obvious over those claims. Accordingly, it is respectfully requested that the Examiner withdraw the rejection of claims 9 to 14, 16, 17, 19, and 20 over those references.

Applicants thus submit that the entire application is now in condition for allowance, an early notice of which would be appreciated. Should the Examiner not agree with Applicants' position, a personal or telephonic interview is respectfully requested to discuss any remaining issues prior to the issuance of a further Office Action, and to expedite the allowance of the application.

No fee is believed to be due for the filing of this Amendment. Should any fees be due, however, please charge such fees to Deposit Account No. 11-0600.

Respectfully submitted,

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